

Psychological Bulletin

THE EXPERIMENTAL STUDY OF AESTHETIC JUDGMENTS

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INTRODUCTION

The field of aesthetics has traditionally been divided into two distinct parts, creation and appreciation. This review is concerned only with the second of these parts. Of human behavior in general it is concerned with a very everyday type of reaction, namely: acts of choice, expressions of preference, and statements of appreciation. The common element running through all members of this class is that at the time they occur they are acts of either acceptance or rejection, or they symbolize such acts. Yet, since actual experimental investigation of this phase of human behavior has been directed at the phenomena of judgments, or at symbolic movements representing the overt choices, the field should be defined operationally in terms of evaluating judgments. It is assumed that these judgments indicate awareness on the part of the subject of an affective state. These inferred affective states, which are the real objects of interest in the study of aesthetic appreciation, shall be referred to in this paper by such terms as aesthetic experience, pleasantness and unpleasantness, affection, feeling, and their cognates.

The judgmental methods employed in experiments on aesthetics consist of the three basic ones, rank order, paired comparison, absolute judgment, and numerous modifications of each. The three basic methods are described in requisite detail by Woodworth (96), Guilford (38), and Beebe-Center (5). Since the data of aesthetics consist of judgments, the method employed in eliciting the judgments must be considered one of the primary conditions of the results of an experiment. Consequently, any principles of difference between the various methods, demonstrated either in psychophysics or in aesthetics, are pertinent to the present sub-

ject. Any laws found to govern judgmental reactions must be taken into account in interpreting the results of aesthetics experiments. Special attention should be given the relative nature of absolute judgments (cf. Harris, 39, 40; Hunt, 47) and the significance of "mixed" judgments, recently demonstrated by Lanier (53).

The Experimenter's Stimulus Error

The stimulus error, as originally defined by Titchener, is an error of the observing subject. It consists in his assumption of an undesirable set, or *Einstellung*, the most frequent form being that of common sense which points the subject's attention toward, and words his reports in terms of, physical objects; whereas the set desirable for introspection restricts his attention and reports to existential, conscious qualities. In determining the two-point threshold, for example, the subject makes the stimulus error when he tries to identify the stimulus correctly as one or two points instead of reporting merely the presence of "oneness" or "twoness" (9). When the data of an experiment consist of judgmental reports, choice and rigid control of subjects' observational set are just as important today as they ever were.

There is, however, another form of this same fundamental stimulus error which is perhaps even more important for present-day, functional experimentation. This error differs from the other in that it is distinctly the experimenter's, rather than the subject's, confusion of the two definitions of "stimulus." It consists in explicitly or implicitly treating a stimulus variable which has no meaning apart from human reactions as if it had independent, physical existence. This is especially vicious and confusing in the field of aesthetics, where stimulus relationships and qualities, such as unity, complexity, simplicity, balance, symmetry, fusion, smoothness, formality, and representativeness, are studied in relation to value. Definition of qualities such as these is frequently given in terms of the physical object or its elements, or in a manner implying that anyone who took the trouble to look for them would remark their presence and amount. Complexity, for example, has been very conveniently defined for polygons in terms of the number of sides the figure contains. Other qualities, such as familiarity and even pleasantness itself, which are more obviously human reactions and logically difficult to conceive of as being "in the physical object," are sometimes implicitly located in the physical stimulus. This is the case, for example, when familiarity is

measured in terms of frequency of appearance, and when pleasantness or unpleasantness of a stimulus is assumed to be present to a subject whenever the stimulus is present.

Stimulus qualities such as those listed in the last paragraph have no meaning except in terms of human reactions. They really *are* human reactions to the physical stimulus; and there is nothing within the physical stimulus itself which indicates the degree of the quality it will arouse in any one subject or in the average subject. If definition is attempted in terms of number of elements, grams, wave length, or foot-candles, it should be clearly realized that such definition is entirely arbitrary unless correlation with a behavior indicator has been established. The most obvious measure of stimulus qualities is in terms of judgmental reports. It is possible, however, to employ other indicators, such as reaction time, P. G. R., muscle tension, or ease of learning.

Examples of this form of the stimulus error are cited in the following pages as cases of confusion of the *physical stimulus* and the *psychological stimulus*. In some instances the error takes the form of explicitly defining the stimulus quality in terms of physical concepts (cf. page 292); in others, the error consists in failure to define the quality in terms of the psychological stimulus, thus implying that it is identifiable in terms of the physical stimulus (cf. page 285).

The body of this review is divided into three parts corresponding to three aspects of aesthetic experience. Part I, on "Attitudes," is concerned with the response aspect of pleasantness and unpleasantness. This section treats experiments which bear especially on the nature of the affective state. Part II, on "Perception," deals with the stimulus aspect of aesthetic experience. Part III, entitled "Experience," includes a discussion of experimental results which bear on the genetic aspect of affection.

The chief concern of the present paper is with the fundamental nature of aesthetic experience. A voluminous section of the literature on group differences in mean judgment values, which has little direct bearing on the nature of the responses underlying the judgments, has been purposely ignored.

I. ATTITUDES

A tendency to stress the relevance of attitudes to aesthetic judgments occurred early in the history of the psychology of aesthetics and has persisted to the present. They are usually re-

ferred to in two distinguishable ways—namely, as interference factors which cut across the truly affective and thus introduce excessive variability into the data, and as somehow germane to the nature of affection itself. Yet no systematic attempt has been made to specify and clarify just what the fundamental psychological nature of attitude in relation to aesthetic judgment is.

The Nature of the Concept "Attitude"

Attitude is a member of that rather crowded class of concepts invoked in some form by every systematist to explain the apparent directedness of behavior, the puzzling problem of why any particular response is what it is rather than one of numerous other possibilities. In a recent exposition of the systematic importance of these selective agents by Kingsbury and Carr (50), they are all grouped together under the appropriate caption of "directional dispositions." Wants, interests, needs, motives, Allport's traits, Lewin's valences, McDougall's instincts, Freud's complexes, Wheeler's field forces, all belong in this class with attitude. Perhaps the most crucial thing to hold in mind about these concepts, for the sake of clear thinking, is the fact that they *are* concepts and not phenomena, data, or observables. They are inferred from the persistent appearance in a subject of observed reactions. Directional dispositions are labeled with the names of psychological objects which stimulate the persistent reactions; and furthermore, each is endowed with a conceptual energy which varies in strength with the persistence of the reactions and which is positively or negatively directed with respect to the object. These antipodal directions are conceptualizations of the observed increase or decrease in distance between subject and stimulus which is effected by a large category of human reactions. Now, since the approach to some psychological objects entails prolonged activity in which transient responses of approach and avoidance to immediately presented stimuli are made, and since with repetition of the prolonged activity the transient responses become persistent, though intermittent, it is obvious that all directional dispositions cannot be conceived of as on the same level and of the same duration. This problem can be solved if it be conceived that with the first approach to (or avoidance of) an object requiring prolonged activity the directional disposition selects the transient responses themselves; but with repetition a lower-level disposition becomes established toward each stimulus eliciting a transient response, and the primary, prolonged disposition comes to select these secondary ones.

Thus, one type of directional disposition is general in nature, of longer duration, and more truly selective, while others are specific in nature and point the subject toward a particular response to a particular stimulus. The latter are really the same things as preparatory tendencies, a concept developed in learning experimentation. Since there is at present no general agreement on terms to distinguish these two types of directional dispositions, both of which are frequently referred to as "attitudes," they shall be distinguished in the present paper as "sets" and "attitudes," respectively. The first covers what are usually referred to as motives, interests, desires, *Aufgaben*; the latter, the positive or negative characteristics of the specific responses attached to specific stimuli. To illustrate the present proposed usage of terms, the rat may be said to run the whole maze under guidance of a set; it reacts to the particular turns and alleys encountered under the impulse of attitudes.

The Influence of Sets on Aesthetic Judgments

The judgmental data of early experimental studies of preference for simple visual objects, such as rectangles, triangles, colored papers, and line segmentation, were characterized by extreme variability. Every stimulus was usually ranked by several subjects in every possible position of merit. On the basis of casual introspections, followed by intensive studies of awareness during judgment, it became evident that the explanation for this variability lay in the subjects' differing reasons, or criteria, for choice or absolute judgment. Whereas one subject might maintain that his preference for a particular color occurred immediately and for no reason extraneous to the stimulus, another subject might give high saturation as a reason, another the symbolic meaning attached to the color, and another his preference for a girl who once wore a dress of that color. Furthermore, it was found that these varying reasons for judgment, although at first glance appearing even more numerous than the subjects, could be classified into a limited number of types. Accordingly, several doctrines of "perceptive types," or types of perception, were developed. Bullough, who, among psychologists of aesthetics, has been identified with this typing of perceptions, has published an excellent review of the early work of this nature (13). It should be emphasized that the data for this typing were differences in judgments of the same stimuli plus differences in reasons given, and that the sets were inferred from the latter to explain the differences in judgments.

Types of Judgments. (1) A large number of studies have been published which deal only with the introspective reports of awareness and reasons for preference, but which do not attempt to correlate the introspective evidence with differences in judgments of the stimuli. This is the only evidence given for Bullough's four types (11), although they have been verified in at least four subsequent studies (12, 62, 32, 24). These four types are briefly the following:

(a) *Objective.* Awareness is dominated by stimulus qualities and relationships. The set is impersonal and frequently involves preconceived standards of preference.

(b) *Physiological.* Mood and bodily reverberations dominate consciousness. The sensuous effects are taken as the basis of judgment.

(c) *Associative.* The subject is aware of some concrete meaning aroused by the stimulus. Judgment is determined by evaluation of the meaning.

(d) *Character.* Mood-like characteristics, which the subject feels to be subjective in the second type, are perceived as in the object. This is an empathic sort of response, involving a minimum of self-awareness, and may possibly be identified with "projection."

Each of these types should be conceived of as a different set which directs attention to one kind of sensory or ideational data. Other investigators have uniformly found these four types, although they have differed from Bullough in details of naming and amplifying subtypes; and they have found evidence for additional types. Bullough was inclined toward the view that these types characterized different subjects and that, consequently, individuals could be typed as well as the judgments. Subsequent investigators have failed to support him in this, however. They report that, although some subjects make more judgments of one particular type than they do of others, the large majority of subjects do not show a type-tendency. Single and paired colors, single and paired tones, geometrical forms, and words have been used as stimuli in these studies.

(2) Bullough's four types have not been reported in experiments which correlate differences in set with differences in judgments. Pratt (73) found that his subjects' preference judgments for tonal intervals fell into two distinct types, the judgments of each type being in close agreement on the relative merits of the intervals. Introspective investigation revealed that one group of subjects was using "smoothness" as a criterion; the other group was using "musical meaning" as a criterion of preference. Valentine (85),

who recorded changes in preference judgments of tonal intervals effected by repetition, reported that the values of intervals failed to change with two subjects who were found to be employing objective, preconceived criteria of relative merit. A similar correlation was reported by Harris (40) for changes in judgment due to contiguity. Nakashima (63) found a correlation between set and reported ease of the process of judgment; and Yokoyama (97) reported differences in the affective judgments accompanying the sensorial (content) set and the objective (common sense) set.

(3) Several studies of introspective data have supported conclusions of subject types, as opposed to judgment types. The types, however, have been only two in number, namely: a pattern type, or tendency for awareness to be dominated by formal, relational characteristics of the stimulus, and a representative type, in which the habitual tendency is for awareness to be dominated by the meaning of the stimulus. This tendency for subjects to fall into one or the other of these types has been most thoroughly investigated in studies of pure perception (79, 66, 35). Among studies of aesthetic judgments, it has been reported in greatest detail by Feasey (32). These two types, as subject types, deserve special mention, because of the uniformity with which they are found in separate investigations and because of related findings to be discussed later (cf. the sections on "Inverse Factor Analysis" and on "Personality").

The center of this problem of the existence of perceptive subject types lies in the generality and persistence of the types of judgments in different subjects. Experiments of the kinds described above have failed to prove that the appearance of subject types is not the result of temporary assumption of set on the part of the subject, for the purposes of the particular experiment in which he is serving.

The Influence of Instructional Sets. Although many investigators have remarked the effect of instructional set on judgments, few have made this effect the special object of study. Wells (89) had subjects judge different series of stimuli, of varying grades of complexity, under several general instructional sets, and found that the percentage of P judgments varied with the type of instructions. Legowski (54) demonstrated the effect on affective judgments, of simple geometrical forms, of specifying a purpose or use for the stimulus objects. For example, his subjects judged rectangles and triangles under general instructions and under instruc-

tions which specified use of the stimuli as calling cards and gables, respectively. The effect was evident in wide differences in relative merit for certain stimuli under the two conditions.

These studies show beyond any doubt that sets influence judgments of P and U. The particular set a subject takes in any experiment is largely determined by factors within himself, although it can be to some extent controlled by instructions. The evidence indicates, however, that sets vary in spite of specificity of instructions and other conditions at the control of the experimenter. Therefore, other methods than prearranged experimental design must be used in order to control them.

In addition to specificity of instructions, the following methods may be employed to control set: (1) practice of subject; (2) introspective reports; (3) analysis of pooled judgments for signs of bimodality, or distinctly different trends (cf. 73); factor analysis is ideally suited for this purpose; (4) recordings of involuntary reactions in order to point out atypical sets.

Attitudes

The preceding discussion is concerned with the effects of what is herein defined as "set" on aesthetic judgments. There remains the problem of the role of attitudes, the narrower form of directional dispositions, which point the subject toward or away from a stimulus. Reference to "attitudes" in this sense, and by this term, also occurs frequently in studies of aesthetic judgments, especially in connection with subjects' introspections on the judgment process. Young (98) reports "movements away" from the stimulus to be associated with U judgments of odors; in summarizing the common-sense "attitude," E. F. Wells (89) remarks that attention is directed toward the "affective significance and reactions rather than content"; H. M. Wells (92) reports that during the period preceding the act of choice between two alternative tastes, subjects' awareness is dominated not by P or U elements, but by "active tendencies." Numerous implicit references to, and occasional explicit statements of, action tendencies can be found in the voluminous protocols published in the early papers on affection. The most evident conclusion is that these specific, positive and negative attitudes *are* what the judgments of P and U, beautiful and ugly, desirable and undesirable, refer to. In other words, when the subject makes a judgment of P, it means that he is aware of a positive attitude; and when he makes a U judgment, he is aware of a negative attitude.

Although a number of psychologists have remarked the affective nature of attitudes, none of them has followed the implications into the problems of the field of aesthetics (96, p. 241; 46, p. 807). Thurstone (84, p. 261) defines attitude as "the affect for or against a psychological object," and in the same context refers to his "definition of attitude as the affective character of potential action about a psychological object." Bartlett (3, pp. 190-194), in summarizing his significant finding that attitudes occur in the first stages of both perception and recall, writes that about the only thing he is certain of concerning the fundamental nature of attitudes is that it is largely "affective." References to the specific nature of these attitudes are indeed difficult to find in the psychological literature. It is possible that the conceptual haziness about them can be dispelled by identifying them with affections, and both with disposition toward specific response. The following experimental findings lend weight to this identification of affective consciousness and tendencies toward action.

(1) The series of experiments performed around the turn of the century on Wundt's tridimensional theory of feeling (5, pp. 60-67) all agreed in finding that during experiences judged P and U, consciousness was replete with "feelings" of excitement, relaxation, tension, depression, etc., although there was little agreement on the structural nature of them. Wundt and his pupils held them to be unique contents; Titchener and his pupils held them to be kin-aesthetic sensations. For the present purpose it is sufficient to point out that each of the terms used to describe these conscious qualities is a term implying action, and that none of them connotes passivity. The old disagreement about their existential nature is resolved if they are identified as felt action tendencies, felt either as purely central (cerebral) phenomena or as bodily reverberations from consequent changes in muscle tension.

(2) Similarly, the imageless contents, especially the *Bewusstseinslagen*, which the Würzburg school found to accompany the process of judgment in general, are most easily incorporated into the fabric of present-day psychology in the form of action tendencies or attitudes.

(3) Nakashima (64) found that the reaction times of "feelings of strain, excitement, curiosity, interest, surprise or shudder, wonder (strangeness), familiarity, recognition, a certain indescribable feeling" (*Bewusstseinslagen*), were of the same order of magnitude as those for judgments of P and U.

(4) It has been fairly uniformly found that actual, though small, movements of approach and avoidance accompany judgments of P and U. The relevant studies have been summarized by Beebe-Center (5, pp. 339-349), who concludes from them that, although there is a definite correlation between P and U and opposed action tendencies, the experimental evidence does not show action tendencies to be a *sine qua non* of P-U judgments.

(5) Washburn and her collaborators (87, 88) found in two investigations that in many cases the affective values of single and paired colors could be voluntarily changed. This finding is difficult, if not impossible, to coordinate with any conception of affection other than one in terms of reaction tendencies. Some subjects actually reported accomplishing the shift in value by changing their "attitude." The methods reported by other subjects can easily be interpreted as ways of bringing about the same change.

(6) Mull's recent study (61) demonstrates the occurrence in aesthetic judgments of a phenomenon which, in the psychology of learning, has been labeled "anticipatory tendency." Subjects listened to repeated playings of a musical recording and indicated, for each playing, the parts they considered pleasant. Although each subject was highly self-consistent in the parts indicated, the pooled results showed a tendency for the original pleasant areas to spread anteriorly in subsequent repetitions. Now, anticipatory tendency is generally interpreted as merely a reaction tendency which becomes conditioned to stimuli regularly preceding the one that originally elicited it.

(7) In Peters' experiments (67, 68, 69, 70), P and U judgments of foreign words were determined by having subjects learn to pronounce or not to pronounce them when they were presented visually. Those words pronounced increased in mean affective value; the others decreased. The most obvious interpretation of this result is in terms of positive and negative attitudes. When the stimuli were presented for judgment after learning, each aroused an anticipatory tendency which was a pointing precursor of the act that had previously been learned as response to it. When the anticipatory tendency was the positive one of pronouncing, the stimulus was judged P; when it was the negative one of inhibition, the stimulus was judged U.

Inverse Factor Analysis

The logic and application of this technique to aesthetic judgments has been developed by English psychologists, who were pri-

marily interested in type or tendency factors in the judgments. In the history of the psychology of aesthetics, they represent a continuation of the trend or school which began with Bullough and his perceptive types.

The Method. Davies (21) has published an excellent review of the method and a summary of most of the studies in which it has been employed. Only a small, and relatively recent, part of these studies was concerned with aesthetics. Derivations of formulae and presentations of the logic of inverse factor analysis are to be found in recent publications of Burt (14, 15, 16) and Stephenson (81, 82).

As applied to aesthetic judgments, the original correlations are the intercorrelations of the ratings or ranks received by a series of stimuli from each individual subject. Thus, each stimulus is treated as a "test." The end-results of analysis are: (1) an estimate of the percentage of total variance in judgments due to a general factor, or factors; (2) for each subject, an index of determination of judgments by the general factor; (3) an estimate of the percentage of residual variance due to secondary bipolar, or group, factors; and (4) for each subject, an index of determination by the secondary or group factors. The first and third are statistical estimates of what are evident in the original ratings and intercorrelations of original ratings, if they are present to any considerable degree. When mean ratings are reliably different for different stimuli, and when the frequency distribution of ratings for each approaches normality, a general factor will be found. When the matrix of intercorrelations can be observed to consist of submatrices, two of high positive r 's and two of low positive, or even negative, r 's, two group factors will be found upon analysis which behave as the two ends of a single secondary, bipolar factor. The third end-result will in this case also disclose itself in the form of frequent bimodality of judgments for individual stimuli.

Results. (1) A strong general factor has been found for judgments of every series of stimuli that have been factorized. This factor determines in different experiments from 30% to 70% of the total variance, although the individual subjects' saturations with it vary widely. Beebe-Center (4) and Guilford (37) used Spearman's tetrad difference equation to factorize judgments of odors and colors, respectively. Strong general factors have been found for judgments of picture postcards of many different classes of objects, poetry, prose, odors, colors, and polygons, in different

studies which employed chiefly Burt's methods of analysis (23, 94, 41, 27, 28). In terms of the percentage of variance determined, the importance of the general factor varies with the homogeneity of subjects and the merit-range of the stimuli. It is found, for instance, that the judgments of experts are determined very highly by a general factor. In most of the studies listed above, the stimuli were selected to represent a wide range of preferences, although the subjects used were not very homogeneous in age, training, and cultural background.

(2) Eysenck (27) found evidence of the generality of this general factor from judgments of one series of visual stimuli to those of other series of visual stimuli, and from these to stimuli of different kinds and modalities. Eighteen subjects' rankings of 18 sets of picture materials were separately factorized; the 18 subjects' saturations for the 18 general factors were then intercorrelated, and the resulting correlation matrix, which was of the usual form, was factorized. A general factor was found which determined 20.6% of the variance in saturations. Eysenck proposed to call this pervasive general factor a "T"-factor, for objective (general) taste. Communality between this T-factor and the general factors for 31 odors, 10 colors, and 64 polygons was demonstrated by correlating the subjects' saturations for each with their saturations for T. The r 's were high positive ones and reliable except in the case of colors. In a later experiment the communality of the T-factor in pictorial tests and in polygons was verified (28). Regardless of what the ultimate explanation of the T-factor may be, it certainly evidences the generality of a trait of conformity.

(3) A secondary, bipolar factor has been found to be operative to varying degrees in the variance of judgments of visual stimuli, in every case in which it has been looked for, and in several tests of literary appreciation. In four studies, employing general factor methods, this bipolar factor was found to be present, but insignificant in degree (23, 94, 27, 28). The fact is significant, however, that it was found repeatedly and that it was identified in every case in strikingly similar terms. For pictures this factor was characterized as taste for the objective *vs.* taste for the subjective, as classical *vs.* romantic (23), and as taste for the formal *vs.* the representative (27). For literature it was characterized as classical *vs.* romantic (94), and for polygons, as simple *vs.* complex (28). The methods used in these studies for identifying this bipolar factor were twofold. One was examination of stimuli on which the judg-

ments of subjects of high positive and high negative saturations differed widely. The other was comparisons of introspective reports of subjects of high positive and negative saturations.

In two papers Stephenson (81, 82) included the results of group-factor analyses of judgments of colors and of vases. Both analyses were presented primarily for illustrative purposes. However, his identification of the two group factors found, in each case, parallels those for the bipolar factors arrived at in more thorough studies which used general factor techniques. In the case of colors, he identified the two group factors as taste for subtle, subdued colors and taste for bright and vivid colors. In the case of vases, they were identified as taste for simple form and taste for the ornate and realistic. Stephenson apparently picked his subjects for both experiments on the basis of heterogeneity of taste.

(4) Eysenck (29) has recently published the one study in which a definitely significant bipolar, or "type," factor was found. He selected stimuli of about equal merit, on the basis of judgments obtained in previous experiments, in order to increase the relative influence of the bipolar factor and to diminish that of the general factor. The bipolar factor was also boosted by using subjects of heterogeneous training and cultural background. He identified the resulting strong bipolar factor, for each of five sets of pictures, as choice of the older, conventional, less colorful *vs.* choice of the modern, impressionistic, and colorful. He furthermore demonstrated a communality of the bipolar factors in all five tests and proposed the name "K"-factor for this general bipolar factor.

These studies disclose enticing prospects of experimental possibilities, in the way of measuring and psychologically defining the nature of the general factor, or factors, and the nature of the group factors. These English studies have done nothing toward identifying the general factor; all they have done is measure it. As for their identifications of the group factors, their weakness lies in definition. They have all made the stimulus error. Stimulus characteristics, such as form, representativeness, classical, romantic, simple, complex, were treated as if they were variables of the physical stimulus with existence independent of any reacting subject. These characteristics should have been given psychological definition. The most obvious procedure would have been to have the same, or a comparable, group of subjects judge the stimuli for form, representativeness, simplicity, etc., and measure these qualities in much the same way P-U was measured. Or any of the techniques employed

in perception experiments, such as brief exposure, could have been used to measure these characteristics psychologically. As it is, the reader's confidence in the stated nature of the type-tendencies depends on his opinion of the investigator's saturation with the general factors for judging form and meaning, simple and complex, and the other stimulus qualities in question.

It is highly significant that these studies, as well as those outlined above on type-tendencies disclosed in introspections, should find only two types and that all experiments of both kinds should identify the two corresponding *sets* in terms suggestive of *form* and *meaning*.

Personality

Experimental studies of stimulus preferences and personality have been few in number and for the most part ambiguous in results.

Carroll (18) found Pearson r 's of $-.18 \pm .07$ and $-.11 \pm .07$ between extroversion, as measured by the Bathurst test, and the Meier-Seashore and McAdory art judgment tests, respectively. Burt (17) reported characteristic differences in central tendencies among picture preferences of extroverts and introverts. Preferences of the former leaned toward the meaningful (romantic and realistic); those of introverts, toward the formal (impressionistic and classical). Eysenck (29) correlated a test of the K-factor, in which preferences for bright, modern pictures were scored high, and preferences for subdued, conventional pictures scored low, with measures of E-I and of radicalism-conservatism. Measures of both personality traits were the means of two judges' ratings and a paper-pencil test, Heidbreder and Vetter, respectively. He found the same reliable correlation in both cases, $+.72 \pm .13$ (σ). Sisson and Sisson (78) compared the mean scores on the Allport-Vernon Scale of Values test obtained from two equated groups, one composed of introverts, the other of extroverts. The Bernreuter test was used to identify the personality tendencies. The only difference even approaching reliability was that between scores for aesthetic value ($C. R. = 2.51$). This mean difference implied that introverts place greater value on the appearance side of things than do extroverts.

While none of these sets of results is to be considered highly significant, the uniformity of the finding of a difference between extroverts and introverts is suggestive of a true difference. The indications are that introverts prefer the formal, extroverts the meaningful. Besides being in accord with general opinions about introverts and extroverts, this indication can readily be interpreted in terms of the view which identifies affection and reaction tendency. If introversion is the tendency to attend to one's own

bodily reactions, including attitudes, and if aesthetic judgments are actually reports of observers' attitudes, one would expect introverts to be more familiar with their attitudes, as well as their stimulus conditions, than extroverts. And furthermore, as a consequence of his more frequent aesthetic experiences, the introvert would be expected to have abstracted the generalized formal elements of appearances from the particularized meaningful elements, at least to a greater extent than the extroverts, and consequently show greater relative evaluation of the former.

Aesthetic Judgments and Emotion

This is another relation that is in need of definition and clarification. There are few people who doubt that emotion and P-U are intimately related; but the question of precisely *how* is seldom given a specific answer. Most of the early studies of affection and bodily indicators of emotion are useless for our present purposes, because affection and emotion were not clearly distinguished. Also, most of these studies (cf. 5, pp. 318-325) have vainly sought differential patterns of physiological responses for P and for U and have not sought a correlation of these responses, as indicators of emotion, with judgments of P and U, which is our present interest. This correlation has, however, been fairly thoroughly investigated in the case of the P. G. R., and some highly significant findings reported.

(1) Two studies found no relationship between degree of preference judgments of stimuli and the extent of mean P. G. R. deflection (32, 25). A large P. G. R. was observed to occur only in isolated instances of extreme P or U. The stimuli used in these two experiments, rectangles, geometric forms, and words, were not ones calculated to be uniformly either very exciting or intensely P or U.

(2) One experiment, by Shock and Coombs (76), did find a relationship, but one that was far from perfect. Odors were used as stimuli with high school girls and boys as subjects. The stimuli were judged on a five-point rating scale (VU, U, I, P, VP). The plot of mean deflection on mean rating showed a U-curve for the girls, with the most reliable difference being between mean P. G. R. for VU and mean P. G. R. for the other categories, which were themselves not greatly different. The curve for boys was not U-shaped at all, but L-shaped, with the VU category standing alone, and well above the others in P. G. R. These results accord in general with an opinion, shared by most normal people, that VU odors are more frequently emotion-arousing than are VP odors.

(3) Two studies have shown fairly conclusively that P. G. R. is not associated with P or U directly, but with the conditions generally considered determinants of emotion. One of these studies (92) was an investi-

gation of the act of choice. The procedure briefly was to present for choice eight tastes of varying preference values, each stimulus taste being paired with every other one. It was found that P. G. R. was well above average when the members of a pair were of nearly equal value (P—P, I—I, U—U) and was well below average when the two stimuli of a pair were of widely different values (P—U, P—I, U—I). Now, if P. G. R. were related directly to degree of P or U, P—P and U—U pairs should have caused much greater deflections than I—I. The results show instead that P. G. R. is correlated with conditions favoring conflict of action tendencies.

The second experiment is one recently published by Lanier (53). His subjects responded to stimulus words with one of four categories, P, U, I, and M (mixed). He found no difference in P. G. R. for the three judgments P, U, and I, but did find a significantly high mean deflection for M judgments and for *individual* responses in the other three categories, *i.e.* a response given by only 1 subject in 38. Both the M and the individual judgments were relatively infrequent. M judgments were by definition conflict, or indecision, judgments; individual responses are among the generally accepted indicators of emotion.

The results of these experiments favor the conclusion that P. G. R. is not a direct correlate of P and U judgments. In none of the experiments does P. G. R. appear to be an invariable accompaniment of such judgments. Taken as a whole, however, these studies indicate that P. G. R. accompanies P and U, as well as I, judgments when the affective states underlying the judgments are emotional in nature, specifically when (a) the stimuli are tastes and odors and when (b) the response is one of conflict or indecision. These facts, and the close association that has been established between P. G. R. and emotional excitement, point to a conclusion concerning P and U judgments which certainly does not distinguish them among the family of human reactions—namely, that such judgments are sometimes accompanied by emotion, sometimes not.

In order to clarify the relation between affection and emotion, it is necessary to distinguish three terms: affective judgment, affective state, and emotion. The first is the datum, and is operationally definable in terms of method. Affective state, or affection, has been identified in this paper with attitude, or reaction tendency toward or away from. When affective judgments are made, affective states are present either actually or symbolically. The third term, emotion, may be defined, as the derivation of the word itself implies, in terms of movement. It is inferred from any activity in which the subject is strongly moved, impulsively, involuntarily. According to this definition, any response may be said to be emo-

tional to the degree that it is itself strongly impulsive or is accompanied by other, conflicting, strongly impulsive responses. Thus, when attitudes are only symbolically present, the P and U judgments will be entirely lacking in emotionality. When the attitude is actually present, the P-U judgments will be emotional in direct proportion to the strength of the attitude or to the strength of correlative action tendencies.

II. PERCEPTION

Every aesthetic experience is also a perceptual experience. This, of course, can be said of every distinguishable type of human experience, but the identity in the case of aesthetics is universally considered closer than for most other types. The really important thing to notice, however, is not the similarity of the two in the abstract, but the similarity in the concrete, experimental operations used to measure each. In both kinds of experiments the uniform elements are the following: The subject is given a set to direct attention to some particular stimulus quality; stimuli are presented to him; and he is required to report in the form of judgments of the quality. Variations of methodological details in one are paralleled by corresponding details in the other. The one crucial difference between the measurement of value and the measurement of other stimulus qualities lies in the set; in aesthetic experiments subjects are set to observe and judge value; in perception experiments they are set to observe and judge such stimulus qualities as unity, organization, finality, etc. Thus, the two concepts are related as species and genus; aesthetic experience is a form of perceptual experience.

Many stimulus qualities, such as unity, rhythm, fusion, balance, proportion, are undoubtedly among the determinants of aesthetic value. In many aesthetic studies, judgments of qualities such as these have been treated either as themselves value judgments or as judgments of factors directly correlated with value judgments. However, the exact functional relationship of aesthetic value for any type of stimulus with any of these other qualities is not known, and obviously it could not be one of identity with all of them simultaneously, since any particular stimulus possesses them to varying degrees. Instead of assuming here a relationship of identity, it should be considered an extremely significant *possibility* that the objective (general) factors operating to produce uniformities in group preferences are in large part the same ones

which determine perceptual principles, or laws of stimulus relationships. The "formal" principles of art probably refer to some such laws of organization within the sensory field.

It should be clearly remarked that such laws refer to organization in the psychological stimulus and not in the physical stimulus; that is to say, they express ease or readiness-to-organize tendencies on the part of the subject. They are "objective" in the sense of being fairly general among all subjects.

Principles of perceptual organization are to be found aplenty among studies of perception. The nature of the laws and the techniques for detecting and measuring them have been worked out in most detail for vision by the Gestalt psychologists (52). The techniques are really methods of reducing the force of the physical stimulus in order that the *insistence* of specific relationships in the psychological stimulus, or "readiness-to-organize" tendencies of the subject, may reveal themselves. In other words, when a perceived relationship has a low threshold or is relatively defiant of disruption, it reveals a readiness tendency of the organism.

Although the Gestalt psychologists, and most of the other investigators of perceptual principles (7, 66, 30), have been well aware of the bearing of their results on aesthetics, their experiments have been perceptual experiments and not studies of aesthetics, since value judgments were not part of their data. Definite determination of the functional relationships between the laws of perceptual organization and general affective value really constitutes the central problem of aesthetics, and it remains as yet almost unexplored.

Statistical and introspective evidence has already been cited in this paper (32, 27, 29) for a formal type of set, which causes the subject to select stimuli with strong formal qualities and which competes with a representative type of set. These studies do not show, however, that the stimulus determinants, differentially weighted by subjects of the respective types, do not also contribute to determination of the general factors expressed in all aesthetic judgments.

There are many isolated experimental results which evidence a relationship between aesthetic judgments and certain organizational qualities of the stimulus (71, 74, 55, 49); relatively few, however, specifically relate value judgments to judgments of organizational qualities. Wilcox and Morrison (93) have published an excellent experiment of this latter type, an experiment which

demonstrates the fruitful possibilities of such an attack. They varied the illumination of visual patterns from a very low to a very high level and found that judgments of extreme organization in the perceptual field occurred at the same level of illumination (2.4 foot-candles) at which judgments of intense P also occurred. Pratt's study (73) showed that for tonal intervals the relationships between P-U and qualities of unity, simplicity, complexity, were not simple and direct.

Empirical Formulae of Beauty

The experiments performed by Guilford and collaborators with single colors and pairs of colors constitute genuine functional analyses of the relationships between general affective value and other stimulus qualities. In his experiment with single color stimuli (37), subjects rated stimuli for the nonaffective qualities of hue, saturation, and brightness and also for affective value. One set of stimuli were especially chosen to allow independent variability of hue, thus making experimental isolation of this quality possible. The resulting periodic curve, depicting the dependence of affective value on hue, was analyzed into two simple harmonic, sine waves. From the empirical equation derived from the sine-cosine functions of these waves, affective values of the other sets of experimental stimuli were predicted. Correlation analysis was then applied to the discrepancies in order to derive indices of determination for saturation and brightness. The end-result of such analysis is a regression equation of affective value on hue, saturation, and brightness, each of the latter being weighted according to its index of determination of affective value. Similar methods of correlation analysis were applied toward derivation of an empirical equation for pairs of colors (36, 1).

The chief significance of these studies lies in method rather than in results. They demonstrate the plausibility of applying precise methods of functional analysis toward investigation of the relationships between affective value and other qualities of the psychological stimulus. The stimulus variables need not be limited, as they are in Guilford's studies, to qualities such as hue, saturation, and brightness in single, simple stimuli, or to differences in these qualities for two-component colors. Strictly comparable methods could be readily applied to such stimulus variables as unity, fusion, complexity, and even to variables not generally considered stimulus qualities, such as familiarity, meaningfulness, and expressiveness.

Eysenck (28) has applied correlation analysis toward derivation of an empirical formula for general affective value of polygons, but unfortunately fell into the stimulus error in that he attempted to identify the stimulus variables independently of human reactions.

A Priori Formulae for Beauty

Mathematicians have in recent years contributed two formulae for beauty based chiefly on speculative postulates (8, 75). Birkhoff's has attracted fairly wide attention among psychologists. His general hypothesis is expressed in the formula: Aesthetic value = Order/Complexity. His method was to determine the positive and negative *elements* of O and of C for several types of stimuli, on the basis of his own and traditional opinions. The general formula is given particular statement for each type of stimulus in terms of its own elements. He reproduced in his book specific examples of several types of materials, including polygons, vases, and melodies, and along with each example, the aesthetic value as determined by his formula. He specifically states certain assumptions about aesthetic value which consequently makes it a restricted type of general preference value: (a) Experts excel at detecting it; (b) the experience is intuitive; and (c) connotative associations are excluded, or, in other words, it is limited to purely formal features of the object.

Several experimental attempts have been made to verify Birkhoff's formula (22, 6, 95, 10, 41, 2). Since Birkhoff presented more examples of polygons than anything else, they have been most frequently employed as stimuli. In outline, the method used in experimental tests has been to obtain the pooled rank orders, for an unselected group of adults, of a set of Birkhoff's polygons and to correlate these pooled rankings with Birkhoff's measure of their affective value. The resulting correlation coefficients have varied from +.16 to +.77 in different experiments. In the two most thorough studies (6, 41), employing several types of materials and in some cases using expert subjects, very variable results were found and negative conclusions reached. They found less agreement between experts and Birkhoff than between nonexperts and Birkhoff, and the agreement was exceptionally low for music, the most formal of all arts. In general these studies of Birkhoff's formula have lacked a clear and significant criterion in terms of which to evaluate the degree of correlation found between the empirical pooled values and the predicted values. The obtained correlation

coefficient should be compared with one expressing the reliability of the pooled values themselves. A very useful criterion would be the estimated correlation between the obtained mean ranks and the mean rank orders for the whole population of subjects (26).

In fairness to Birkhoff, it should be stated that in none of these experiments was extreme care taken to observe at the same time all three of the assumptions given above.

The chief criticism to level against Birkhoff's method is that it commits the stimulus error. The elements of order and complexity are defined in terms of the physical stimulus and not in terms of the psychological stimulus. The only significant measures of order and complexity, ones which could be universally applied by any investigator to any type of materials, are measurements in terms of reactions, judgmental or otherwise, of subjects belonging to the population in question and not in terms of hypothetical elements of the physical stimulus. Complexity has been variously defined by Birkhoff and others in terms of such elements as number of separate units (sides in the case of polygons) or as ratio of width to length (for rectangles), as if it were entirely independent of the observing subject and the number of times he has observed the stimulus. Yet it is evident from everyday experience that the complexity of any particular object varies from subject to subject and from time to time for the same subject. Definition of a quality such as complexity in terms of physical elements should at least take into account some Weber Fraction.

Immediacy of Affective Judgments

The problem of whether affective awareness is mediate or immediate in nature is an old one in the history of affective experimentation, and, although it has received scant attention in recent years, is still a significant one. It is likely that with a little practice and related discussion of terms with the experimenter, any subject of normal intelligence could confidently and reliably make reports of mediacy or immediacy of judgments. This problem has a direct bearing on the content-view of affective consciousness, for, if there be a special sensorial content comparable to redness, coldness, etc., awareness should be immediate. It also bears on the possible *intuitive* nature of aesthetic awareness, for, if there be any unique characteristic of intuition, as a type of awareness, it is immediacy.

Studies in which reports of mediacy or immediacy of judgments have been required of subjects are in fair agreement on three con-

clusions (42, 63, 64, 97, 92, 65, 89): (1) The awareness of P or U may be either mediate or immediate; (2) with a passive set, it is more frequently immediate; (3) with increasing practice at judging a particular stimulus, the more immediate the awareness becomes (42, 92).

The significant question about immediacy is not whether or not the *judgment* itself is immediate, because the verbal judgments are, with possible rare exceptions, reports of, and therefore mediated by, preceding conscious states. The significant question is: Is the awareness, which the judgments signalize, immediate? If the affective awareness is preceded by conscious reasons, cognitive criteria, or associations, from which one can infer a *set*, then the answer is "no." If, on the other hand, there are no preceding cognitive processes, the answer is "yes." The introspective studies are replete with evidences that affective awarenesses occur in both of these manners; and this is readily interpretable if affective awareness is assumed to be consciousness of attitude toward. When a critical set selects the attitude, the state is mediate; when the attitude is a spontaneous response to the stimulus, the state may be said to be immediate. An attitude may become the direct response to a stimulus either through frequent repetition or through hereditary structure. This interpretation is favored by the finding that the more intense the P or U state reported in judgment, the shorter the reaction time.

Reaction Time

Although there have been a number of investigations of the latent times of affective judgments (56, 63, 64, 72, 90, 91, 51, 53), the mean times, as well as the experimental conditions, are so variable from one to another that any conclusions extracted must necessarily be very general. The results indicate that mean affective reaction times are longer than simple sensory reaction times, that affective reactions are absolutely more variable than sensory, and that there is no difference in P and in U reaction times.

Introspective reports of four studies (63, 64, 65, 89) agree in finding that relative latent times of affective awareness are longer than for sense awareness. With respect to perception and affection, however, there is no agreement on which usually precedes, although there is agreement on the finding that sometimes affection does precede perception and that any existing mean temporal difference is very small.

Reaction time has been found to vary inversely with degree,

and difference in degree, of affection in seven studies. When the method of single stimuli is used, reaction times are shorter for extreme degrees of P and U than for intermediate degrees (56, 72, 51, 53). When the method of paired comparisons is used, reaction times are shorter for large differences in the affective values of the two stimuli than for small differences (97, 91, 20).

Since there are undoubtedly as many different reaction times as there are combinations of the different stimulus modalities, degrees of complexity, different sets, levels of practice, degrees of meaning, and degrees of affective value, the significance of reaction time for studies of aesthetics lies in its methodological use rather than in determination of just what it is. Thus, as an indicator of atypical judgments, it may be used as a check control on mediacy or immediacy of judgments, degree of value reported, or subjective variation of set.

III. EXPERIENCE

The Learning Aspect of Aesthetic Judgments

Anyone who can successfully catch an objective glimpse of his own everyday evaluating judgments readily recognizes them as, for the most part, learned reactions. The learning aspect of value judgments is even more apparent in the experimental situation. In the typical affective experiment the subject does not have ready-made affective reactions for the stimulus materials presented him. He has to be instructionally motivated to produce aesthetic judgments, just as he has to be motivated to learn a list of nonsense syllables. Not only are the reactions recorded really solution responses, but in most aesthetic experiments the subject is called upon to repeat his judgments with varying frequencies, which is tantamount to the practice phase of the learning process. This analogy has been pointed out and discussed by McGeoch (58), and it has been supported by Hunt and Flannery (48). The following list of experimentally established characteristics of repeated affective judgments, each of which can be readily matched with a characteristic of repeated responses in conventional learning experiments, removes all doubt of the significance of this analogy.

- (1) Individual variability of response judgments decreases with repetition (45, 48, 77).
- (2) Group variability of affective judgments also decreases with repetition (45).
- (3) With repetition of judgments, reaction times decrease (72, 97, 51).

(4) With repetition, subjects report that affective judgments become increasingly more immediate, easy, and natural (42, 63, 97, 92). This can be interpreted as evidence of the "shunting" phenomenon, or elimination of unnecessary response details, so characteristic of the learning process.

(5) One investigation (61), previously referred to, has produced graphic exemplification of the anticipatory tendency, a prevalent learning phenomenon.

The Effect of Repeated Presentations

The effect on affective value of repeated presentations of stimulus has been found in general to be twofold. One effect is temporary; the other, relatively persistent. The temporary effect, called "habituation" or adaptation, is found when the presentations are continuous and the judgments are made simultaneously with each presentation or immediately following a series of them. The persistent effect is found either when the presentations are spaced and the stimulus judged each time it is presented or when continuous presentations are used and judgments are taken after lapse of a considerable rest period. This effect is usually called "familiarity." These dual effects are admirably demonstrated in an experiment by Verveer, Barry, and Bousfield (86). They repeatedly and continuously played a piece of music to subjects on two occasions separated by a week. The subjects rated each playing. The change in mean rating for each continuous period was found to be the same—after a small initial rise, mean affective value fell to a level definitely below the original value. The persistent effect was revealed in the difference between the initial mean values for the two periods, the second being reliably higher than the first.

Most of the relevant studies have been concerned with the relatively permanent effects of frequent repetition. The procedure in outline has been to have subjects judge a series of stimuli for P-U; to present the stimuli repeatedly, usually with a time interval between series presentations, with or without requiring the subjects to judge the stimuli; and finally, to have the subjects judge each stimulus in the series again.

Results have shown that the effect of repetition varies with the individual subject. For the majority of subjects, it is one of increased P in varying degrees; for a smaller number, there is no effect; and for a smaller number still, the effect is one of decreased P. The stimuli employed in experiments yielding these results have been melody endings (31), musical recordings (34, 61), quarter-tone music (59), tonal intervals (60, 85), disliked tasks (83), pictures (56, 57), and foreign names (57).

Three experiments found either no definite shift in mean value or a

shift of both originally P and originally U stimuli toward I. These studies have employed odors (99, 5, pp. 243-246) and tastes (43) as stimuli.

Two studies in which the stimuli were jokes found that frequent repetition resulted in a fall in mean affective value (44, 19).

The detailed results of these experiments show clearly that, although increased P is more frequently than not a consequence of repetition, the effect in any one instance depends upon other factors. It obviously varies with the subject. Meyer, for example, found that listening to his quarter-tone music resulted in decreased P for 2 subjects out of 14. Valentine found that the increased P of dissonances depended on the subject's set. If the set was a critical one, the usual change did not occur with repetition. The effect of repetition also depends upon the stimulus, as shown by the different mean shifts in P for the different experiments. Tastes and odors show a shift which is different from that for complex visual and auditory stimuli. The P values of repeated concords vary with different intervals, and for all of them the change in value differs from that for discords (60, 85). Repetition in one experiment was found to cause increased P of classical recordings but not of jazz recordings (34). Hollingworth (44) found that, although the mean absolute judgments of all jokes fell with repetition, the mean values of certain particular jokes rose.

The purpose of these experiments has been to determine the correlation between repetitions of the physical stimulus and judgments of P and U. They have tacitly assumed that familiarity, a quality of the psychological stimulus, varied directly with the number of repetitions. Answers to the problems created by the apparent dependence of the effects of repetition on other factors than sheer repetition can only be sought in study of the nature of the psychological stimulus. (a) For one thing, the assumption that familiarity of the psychological stimulus varies directly with repetition of the physical stimulus, while in general undoubtedly true under the experimental conditions, cannot be taken for granted in any particular case. It certainly does not follow from the fact that the members of a particular set of stimuli have never been presented to a subject before that they are all equally unfamiliar to him. Furthermore, one would expect the functional relationship between repetition and familiarity to depend upon the complexity of stimulus and the set of the subject. (b) Repetition can radically change the psychological stimulus in different ways. This is banally true of jokes. However, other types of stimuli are not free

from similar, gradual and sudden alterations with repetition. Sudden change is graphically illustrated in pictures containing concealed objects. Once the concealed object is perceived, the psychological stimulus is not the same one it was before. As long as only the physical stimulus and its repetition are taken into account, such changes in the psychological stimulus go undetected. (c) The original P value of the stimulus is obviously an important factor to consider in measuring the determining influence of repetition, or any other condition, on P value.

Peters' experiments (67, 68, 69, 70) are a clear demonstration of the dependence of the effects of repeated presentation on other factors than sheer repetition and point specifically to the responses of the subject.

In one experiment conducted by Barnhart (2), the familiarity, as well as the aesthetic value, of psychological stimuli was measured, thus making a correlation between the two possible. His subjects ranked a set of 16 polygons for familiarity and for P. The plot (not included in the original article) of mean P value against mean familiarity value reveals that the extremely unfamiliar polygons were uniformly low in preference value, while the extremely familiar polygons were either very high or very low in preference value but never indifferent. This indicates that unfamiliarity is associated with U judgments; and familiarity, like reaction time and P. G. R., is related to the degree of affective value but not to the direction.

Contiguity

Is the preference value of a stimulus influenced by appearing contiguous to another stimulus of more intense preference value? Or, stated in another way, is there a tendency for the affective quality of one stimulus to shift to neighboring stimuli? Since there is an established tendency for judgments to be relative, according to which any stimulus of intense P or U value induces the opposite value in its neighbors (39), complete measurement of associative shifting of preference value would necessarily require isolation of the effects of relativity.

Thorndike (83) has published the results of a series of experiments, all of one type, from which he concludes that contiguity does not hold for affection. His procedure was to present a set of test stimuli under two conditions, in one case mixing them with "good" stimuli of the same kind, in the other mixing them with "bad" stimuli of the same kind. During presentation the subjects

were instructed simply to observe the stimuli with intent to recall. Poems, pictures, words, Christmas cards, and colors were used as stimulus materials in different experiments. The results showed no difference in the mean affective values of the test stimuli following the two kinds of determination.

This series of experiments is subject to the criticism that the affective values of the "good" and "bad" determining stimuli were not established. It is not obvious that the positive and negative determining stimuli would have aroused corresponding affective states in the subjects, even if they had been set to judge value; and it is certainly not apparent that without the set, any affective value was present at all. The "good" and "bad" stimuli were ones so judged by traditional and conventional opinion and not by these particular subjects or even subjects of the same population. Thorndike specifically states that arousal of a set for making affective reactions to the stimuli during determination was carefully avoided; and the stimuli used in these experiments were not ones calculated to arouse spontaneous affective reactions. Thus, these results are inconclusive with respect to the effects of contiguity of preference values. They show only that the affective values of test stimuli are not affected by appearing with stimuli which might have been judged P or U if the subjects had been called upon to judge them.

In another series of experiments in which the same materials were used, Thorndike presented test stimuli under the same determining conditions, with two exceptions; during determination the subjects were required to judge relative merit, and authoritative suggestions anent the absolute merit of both test stimuli and inducing stimuli were given. When the test stimuli appeared with "good" determiners, the subjects were told that all the stimuli were of high merit; when they appeared with "bad" determiners, they were told that all were of poor merit. The results of these experiments uniformly showed a reliable difference in mean affective value of postdetermination reports between test stimuli which appeared with "bad," and those which appeared with "good," stimuli. From these results Thorndike concludes that contiguity plus authoritative suggestion does affect subjects' judgments of neutral stimuli. There is nothing in the data, however, which indicates that the mean difference in value was not entirely due either to the prestige suggestion or to the affective reactions aroused by the determining stimuli plus the *set to judge* relative merit.

The experiments on pure contiguity, described first, were intended as control experiments to measure the effect of contiguity alone. The difference in the results of the two sets of experiments was explained in terms of the presence of suggestion in one and not in the other. The very vital factor of set to judge value, which was also present in one and not in the other, was overlooked.

The difficulty here lies, as usual, in a confusion of the physical stimulus and the psychological stimulus. P and U are qualities of the psychological stimulus, and subjects' reactions are the only indicators of their presence or absence. They cannot be controlled by manipulation of physical stimuli alone, because the preference value aroused by any particular physical stimulus is not an invariable consequence of its presentation. With a very few stimuli, such as a pinprick, sudden loud noise, or sugar on the tongue, the affective state is almost invariable; but with the majority of stimuli the arousal of an affective state is dependent upon the presence of a *set to observe value*. If the problem of contiguity has any significance at all for affection, it pertains to the juxtaposition of affective states. Consequently, a test of the effect of contiguity must include measures to insure the arousal of the affective states.

In another series of experiments, reported in the same source, Thorndike clearly demonstrates the influence of *suggestion* on affective judgments.

It has been demonstrated in three experiments that associative shifting of affective value does occur. In each of these experiments, it should be noticed, the affective values of the test stimuli were determined prior to being presented together with others, and affective values were aroused during the contiguous presentations, either by giving subjects the set for selecting affective reactions or by using stimuli which arouse spontaneous affective reactions.

Harris (40) had subjects judge the affective values of 20 colors under two conditions, namely: when every other stimulus presented for judgment was one of nine very P odors, and when every other stimulus presented was one of nine very U odors. The effects of contiguity appeared in the reactions of subjects who did not report a critical set. Their post-determination judgments of the colors showed a higher mean value after presentation with P odors than after presentation with U odors.

Staples and Walton (80) had 13 children judge primary colors by the method of paired comparisons before and after the following determination. One U color was chosen for each child and repeatedly presented, for 15 to 20 experimental periods, with a box containing something the child liked very much, such as a toy or piece of candy. Before the child was allowed to open the box, his attention was called to the colored light.

The subsequent judgment test showed a reliable shift in the pleasantness of the test color, a shift to be expected on the basis of contiguity. The effect was found to transfer to colored boxes and papers and to persist for longer than five months.

Gauger's investigation (33) was a true conditioning experiment. Children's reactions to distasteful fluids, consisting of two salt solutions, egg white, and vinegar, were modified by repeated pairings with a small square of chocolate. The chocolate was presented immediately after each distasteful stimulus. A child's reaction to each presentation of a stimulus was rated by two reliable judges on a scale of "satisfaction-dissatisfaction." The mean of the two ratings was the measure of the P value of the psychological stimulus on any one occasion. Each taste was paired with chocolate once a day for 35 days. The curves for progressive change in preference value of the distasteful stimuli each rose to indifference or above; and the value of chocolate fell progressively toward, but did not reach, indifference.

CONCLUSION

Concerning the nature of the affective state, aesthetic experience, or pleasantness and unpleasantness signalized by affective judgments, the following conception is in part supported by the studies surveyed and serves to coördinate theoretically the whole of them. P and U are positive and negative reactions which may exist in all degrees of overt expression, from a centrally confined preparatory tendency to an observable muscular movement, or which may be nonexistent but symbolically present in some surrogate. These reactions may occur spontaneously, as immediate reactions to the stimulus, or they may be mediated by a set, a cognitively defined criterion, and/or an assumed *Aufgabe*. In the latter case, the positive and negative reactions are actually selected by the set. Accordingly, the affective state is conceived as a type of *response* and may be considered the product of the same determinants which produce other responses, especially motivational selection, inherited predisposition, and associative shifting.

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PSYCHOLOGY AND THE WAR

STEUART HENDERSON BRITT, *Editor*

UTILIZATION OF PSYCHOLOGISTS IN THE ARMY AIR FORCES, AND IN THE ARMY'S CLASSIFICATION PROGRAM

In the April issue of the *Psychological Bulletin* a description was given of the services of the Office of Psychological Personnel of the National Research Council and of the National Roster of Scientific and Specialized Personnel with reference to the most effective utilization of psychologists who enlist in or are inducted into the Army. It was mentioned there that psychologists are being used both in the testing of Aviation Cadets for the Army Air Forces and in classification and personnel work in the Army.

(I) The former program has already been discussed in the March issue of the *Bulletin*, as well as in releases sent out by the Office of Psychological Personnel, National Research Council, to interested persons. The procedure for securing assignment to Psychological Research Units in the Army Air Forces is described below in detail:

(A) A man with training in psychology may wish to secure permission to *volunteer* as an enlisted man in the Army Air Forces. In granting such special permission, *preference will be given to men with graduate training in psychology*; but men with an undergraduate major in psychology who are qualified to use psychological laboratory apparatus and administer psychomotor tests under the supervision of psychologist officers may be considered.

(1) The man should write to the Headquarters of the Army Air Forces, Attention: Air Surgeon, War Department, Washington, D. C. He should specify (1) his name in full, (2) date and place of birth, (3) Local Board number and his own order number, (4) four personal references, (5) his education and experience, and (6) his special training in psychology and testing.

(2) If he is acceptable as a Psychological Assistant, he will be sent a letter to that effect.

(3) Recently enlistments in the Army Air Forces have been closed; but, if the man is acceptable as a Psychological Assistant, a special request for his recruitment can be made through military channels. If he receives a notification that such action has been taken, he should contact his local Recruiting Station periodically

to see if authority for his enlistment and assignment to a Psychological Research Unit has been received.

(4) Military training will be the responsibility of the Commanding Officer at the Air Corps Replacement Training Center and will probably be given concurrently with psychological work duties.

(B) A man with training in psychology who expects to be *inducted* soon may desire to be considered for assignment to psychological work in the Army Air Forces. In such cases, *preference will be given to men with graduate training in psychology*; but men with an undergraduate major in psychology who are qualified to use psychological laboratory apparatus and administer psychomotor tests under the supervision of psychologist officers may be considered.

(1) The man should write to the Headquarters of the Army Air Forces, Attention: Air Surgeon, War Department, Washington, D. C., at least three weeks prior to his date of induction. He should specify (1) his name in full, (2) date and place of birth, (3) Local board number and his own order number, (4) four personal references, (5) his education and experience, (6) his special training in psychology and testing, (7) probable date of induction, stating whether he has been notified definitely of date of induction, and (8) probable place of induction. If there is any subsequent change in his status, he should notify the Army Air Forces at once.

(2) If he is acceptable as a Psychological Assistant, he will be sent a letter to that effect.

(3) When the man is interviewed for classification at his Reception Center, he should state his interests to the Classification Officer and show his letter of acceptability. It is likely that he will be classified as a Psychological Assistant (Occupational Specialty No. 428), unless he is especially qualified in some other field and his services are of more value in that field. With reference to the authority for such action, the Classification Officer may refer to a radiogram, AG 201.6 (1-24-42) ST, to the Corps Area under the general subject: "Special Allotment of Enlisted Men for the Aviation Cadet Selection and Classification Testing Program." The Classification Officer should then classify the man for service at one of the Air Corps Replacement Training Centers (Maxwell Field, Alabama; Kelly Field, Texas; or Santa Ana Field, California), where assignment for duty in the Psychological Research Unit can be made by the Post Commander.

(4) Military training will be the responsibility of the Commanding Officer at the Air Corps Replacement Training Center and will probably be given concurrently with psychological work duties.

It should be noted that assignment to psychological duty in the Army Air Forces does not preclude consideration of qualified men for Officer Candidate Training, since qualified enlisted men can be recommended from Psychological Research Units for admission to Officer Candidate Schools. Following is an *estimate* of the number of psychologist officers being utilized in the Army Air Forces (as of April 1, 1942):

Officers on duty at Psychological Classification and Research Units	25
Psychologists to be utilized as officers during 1942	25
	<hr/>
	50

(II) An analysis of the utilization of psychologists in the Army's classification program administered by the Adjutant General's Office may also be useful to those men subject to call under the Selective Training and Service Act of 1940.

First of all, under current Army Regulations, there is no way in which a psychologist who is within the age limits as prescribed by the Selective Service Act can be granted a commission immediately upon induction into the Army. Second, neither is there any means by which a psychologist in civilian life can attend any special Army course dealing with Army classification and personnel procedures; in fact, it is only after some period of time following his induction into the Army that a psychologist can usually receive special instruction in this field of work.

The decision on the deferment or induction of any given man is, of course, made by his Selective Service Local Board. If he has been put in Class I-A by his Local Board, he may then be placed in the "available for service" category. This means that a short time thereafter he is delivered to an Induction Board where he is given a physical examination by medical officers of the Army, and then, if passed, is formally inducted into the Army.

From his Induction Station he is sent to a Reception Center, where he is given one or more tests for purposes of classification. This includes the Army General Classification Test, probably certain aptitude tests, and perhaps some trade tests. Each man is also individually interviewed, either by officers or enlisted personnel, who are responsible for securing information from him concerning

his social, educational, vocational, and avocational background. He is also categorized with regard to the degree of skill which he possesses in his best occupation. Therefore, it is to the best interests both of the man and of the Army that he give complete details to his interviewer at his Reception Center about his specialized training and experience in psychology. After all data concerning a man have been properly entered on his record, a decision is reached as to his most effective utilization in the Army, and he is then assigned for training purposes to some arm or service.

A man with psychological training may, upon the completion of his test program and interviews at his Reception Center, be classified as a "Personnel Consultant." If this is the case, a report is sent from his Reception Center to the Adjutant General's School indicating the man's name, Army serial number, and the Replacement Training Center or Reception Center to which he has been assigned. Ordinarily the man is sent to a Replacement Training Center; this is the place where a soldier receives his basic military training, which lasts at least 8 weeks. He is then assigned to a Classification Section of a Reception Center or else to a Replacement Training Center, in either case being engaged in practical work of Army classification for some 6 to 12 weeks. In addition to performing straight classification duties, qualified enlisted men are often called upon to assist the Classification Officer in the administration of psychological tests, interviewing, and related duties. In some instances men have been assigned to a Classification Section of a Reception Center without first being sent to a Replacement Training Center, and in such cases they have received their basic training concurrently with their utilization in classification work.

It has been stressed repeatedly in letters sent out from the Office of Psychological Personnel, National Research Council, that there is no guarantee that psychologists will *necessarily* receive commissions in the Army. This statement is true not only at the very beginning of a man's basic military training, but also holds during the period of his utilization in classification work. In fact, even after the completion of this training he is not thereby automatically eligible to become an officer. During his months in the Army he probably has taken additional tests, and most certainly he has been rated by the officers of his unit on leadership, performance, energy, initiative, stability, and other personal characteristics essential in Army life. During the period of time that the Personnel Consultant is assigned to duty in classification work, a

report is prepared by his Classification Officer and is forwarded to the Office of the Adjutant General, setting forth in detail the type of work the man is performing, his manner of performance, and the Officer's estimate of the man's suitability for officer training. From various reports and recommendations thus submitted, a roster of qualified Personnel Consultants is prepared, and a Board of Officers selects from the entire roster the quota of qualified Personnel Consultants to attend the next Officer Candidate School.

If a man is not selected as a potential officer—that is, to attend an Officer Candidate School—he continues the activities in which he is engaged as an enlisted man, and he may be promoted as his manner of performance warrants and as vacancies occur. He may of course, be assigned to nonpsychological duties, although the chances are that a man with psychological training will continue to be used to assist in some type of personnel, classification, or testing work.

If a man is selected as potential officer material—and many psychologists are—he is sent for training to the Adjutant General's Officer Candidate School for approximately 12 weeks. There he receives an intensive course of instruction in Army personnel procedures and classification work. Upon completion of this training he probably will be commissioned as a Second Lieutenant. If a man is not commissioned after attending Officer Candidate School, he still will probably be utilized in classification or testing work.

However, if a Personnel Consultant successfully completes his course of training in the Officer Candidate School and is at that time found to be physically fit, he will then be detailed to attend a special course of instruction at the Adjutant General's School, Fort Washington, Maryland, for Military Personnel Consultants only. This course is conducted by qualified psychologists who have had extensive experience in the field of psychology while on duty with troops. Upon graduation from the Adjutant General's School, the psychologist is returned to one of the various units to perform the duties of a Military Personnel Consultant. This means that he may be assigned to the Classification Section of an Army, Army Corps, Division, Corps Area, Overseas Department, Special Training Unit, Replacement Training Center, or Reception Center. From this time on, promotion (as for any officer) depends upon quality of performance and number of vacancies.

The following brief outline indicates (as of April 1, 1942) the use being made of psychologists who hold commissions in the Army and the training program that has been developed for enlisted men who are qualified psychologists and for whom recommendations for commission as Second Lieutenants, Army of the United States, have been submitted. These figures are *approximations* only; they do not include those given above for the Army Air Forces.

Officers on duty as Military Personnel Consultants.....	50
Officers receiving special training in military psychology...	25
Enlisted men being trained as psychologist officers.....	25
Enlisted men to be trained as psychologist officers during 1942.....	100
	<hr/> 200

In other words, the total number of psychologists to be utilized as officers in the Army during 1942 is in the neighborhood of 250. Many others are being and will be used in psychological duties as noncommissioned officers and as enlisted men.

STATEMENT FROM EMERGENCY COMMITTEE IN PSYCHOLOGY

The following statement has been received from the Emergency Committee in Psychology:

The Emergency Committee wishes to reaffirm its belief that the best interests of psychology during the war period demand (1) a thorough grounding in the fundamentals of the science, with laboratory and field experience, and (2) the maintenance of high standards of proficiency and scholarship in all courses in order that the values which have produced the present high status of psychology may not be lost during the present period. So far as the Emergency Committee can learn, there is no special program of training which might be designated as Military Psychology which can be set down as prerequisite for psychological service in the armed forces.

VOLUNTEERS FOR OFFICER CANDIDATE TRAINING

The following information may be of interest to psychologists, although it applies to men in various occupational groups. Men between the ages of 18 and 45 who have been, or are entitled to be, classified in Class III-A may volunteer at their Selective Service Local Boards for induction through the Selective Service System into the Army of the United States. All expenses incident to travel to

and from and retention at the Reception Center or Replacement Training Center for the purposes of submitting to the qualification examination, including meals and lodging, will be borne by the registrant who has made application for voluntary induction to compete for selection as an Officer Candidate.

The average period of basic and Officer Candidate Training for any registrant accepted will be from six to nine months, during which time he will receive the same rate of pay as a private inducted into the Army of the United States, at the present time \$21 per month for the first four months and \$30 per month for the remainder of the training period, unless his rate of pay is increased by reason of his promotion. In the event that he is found disqualified at any time during his training period or is found disqualified to receive a commission as an officer in the Army of the United States, he will at his request be released from active duty and returned to his home, and will not again be required to undertake active duty unless and until other men in the same status with respect to persons dependent upon them for support are being inducted into military service.

WAR WORK OF THE DEPARTMENT OF PSYCHOLOGY OF YALE UNIVERSITY

The following members of the department of psychology of Yale University are working full- or part-time in work in connection with the war:

Leonard W. Doob, social psychologist who is on leave of absence from the University, is employed now with the Office for Emergency Management in Washington. He is in charge of the analysis section of the Office of the Coordinator of Inter-American Affairs, under Nelson Rockefeller. In this capacity, he supervises a staff in the analysis of public opinion in Latin American republics, and Axis propaganda directed at them. He also analyzes the effects of American activities in this respect and makes recommendations to all divisions of the office on the basis of his findings. Doob is the author of "Propaganda."

Neal E. Miller has recently been granted a leave of absence to accept a commission in the Army Air Force, where he is engaged in the pilot selection program and in research on problems of emotional adjustments in aviators.

Judson S. Brown, instructor in psychology, has been commissioned First Lieutenant in the Army Air Corps and will be engaged in psychological research under the direction of Colonel Harry G. Armstrong.

Several members of the department, including Mark A. May, Neal E. Miller, Judson S. Brown and Robert R. Sears, have been engaged in

New Haven in the Air Raid Warden Training Program giving addresses on the prevention of panic.

Walter R. Miles, professor of psychology, is a member of the National Research Council, studying aviation medicine, sound control in vehicles, aircraft pilot selection and training and night vision. He is a member of its Emergency Committee in Psychology. He is also chairman of the National Research Council Committee on Problems of Neurotic Behavior.

Robert M. Yerkes, professor of psychobiology, is expert consultant to the War Department and a member of the National Research Council's Emergency Committee in Psychology.

Carl I. Hovland, assistant professor, is co-author of the intelligence tests used by the Navy Air Corps in selecting candidates. He is unofficial adviser and consultant in aviation testing both in this country and in Canada. In addition, under the auspices of the War Production Board, Hovland is statistician and industrial psychologist for a group studying working arrangements in war industries. He has recently been appointed expert consultant to the Secretary of War.—*Science*.

BOOK REVIEWS

FAY, J. W. American psychology before William James. New Brunswick: Rutgers Univ. Press, 1939. Pp. x+240.

This is an important book because it is the first, and a successful, attempt to tell the story of the origins and development of *psychological* thought in America up to 1890. The task probably need not be done again. Historians of philosophy and of psychology have given American psychology short shrift. "Prior to 1880," the author quotes Gardner Murphy as saying, "the only important American contributions were a few articles by James during the decade of the seventies." Fay's answer is that from the point of view not of "current interest in what is called 'scientific psychology,'" but of the interests of the contemporaries who did the reading of them, American contributions were, on the contrary, highly important. His book therefore savors of an *Ehrenrettung* of pre-Jamesian thinking.

It is well written, in flowing essay style, often lively, not untouched by humor, and with good sense of proportion. It is thoroughly but considerably documented. "Notes" are gathered into 46 pages following the 166 pages of unimpeded text. At the end there is a valuable chronological table of American, in parallel with foreign, sources, and a full bibliography, alphabetically arranged by authors, of the primary American sources alone. This bibliography lists 83 titles, all books, a total of some 29,559 pages. When one remembers that Wundt wrote 53,735 pages (Boring's figures) in 68 years, the record of all America for the 137 years covered by the bibliography seems like Yankee reticence.

Fay's purpose is clearly put, and he sticks to it: "... the essential facts in the development of American psychology are presented and evaluated in the light of contemporary European psychology, and not according to criteria set up by the science of today with essentially different aims, techniques and objectives." He divides the development into three periods, and the essay into three corresponding chapters. First comes the *Period of Theology and Moral Philosophy*, with two sub-periods—*English Scholastic Education*, 1640 to 1714, and the *American Enlightenment*, 1714 to 1776, a total of 136 years.

The first 74 years, to 1714, were pretty sad. The temper of mind of Puritan New England was pathetically provincial and isolated even from much of contemporary British thought, although the proportion of learned men who had come from English universities was exceptionally large. They brought with them the traditional lore that they had been taught. The tide of seventeenth-century science in Europe (Copernicus, Newton, Hobbes, Descartes, Locke) had hardly touched these shores. American scholars were indeed warned against such new thought, as they were a bit later against Berkeley and Boyle; religion should not be corrupted. In consequence "no single product of American scholarship in any field whatever" appeared during these nearly eight decades. The

teachings were "Plato shorn of his poetry, Aristotle without his breadth . . . , Thomas Aquinas without his logical subtlety."

Somewhat less sad, but still slow-coach, was the second (62-year) phase of the first period, up to the Revolution. Fay terms it the *American Enlightenment*, for about 1714, twenty-four years after he published his *Essay* in England, John Locke was introduced to the colonies by Samuel Johnson. Connecticut born, Yale bred, Johnson became first President of King's College (later Columbia) and was known for his keen intellect, broad interests, and sound scholarship. His definitive doctrine, maturing since he first got hold of Locke, appeared in *Elementa philosophica*, written in English and published by Benjamin Franklin in 1752, "the first American text in Philosophy." Its pattern is Locke, tinged with Berkeley, whom he knew personally. Fay gives its psychology, much of which is "profoundly original," a full analysis "as representing the high point of the eighteenth century in America." Particularly happy are passages on what later became the genetic, individual, social, and comparative psychologies. Unfortunately, the book, although used in King's College and Philadelphia, apparently made no ten-strike. Benjamin Franklin wrote that "'those parts that savor of what is called Berkeleyism, are not well understood here.'" The flames of traditional doctrine still burned too bright. But for 38 years Johnson had been teaching; the roots of British empiricism were slowly spreading.

The only other significant figure in this period was Jonathan Edwards, also of Locke and Berkeley, but chiefly influential because of the bomb he threw into the free-will camp. It was his psychology that helped clinch his doctrine of drastic determinism (his twofold division of consciousness into intellect and feelings, with the Will's locus in the latter), and it was largely the somewhat later psychology of the tripartite division into thinking, feeling, and willing that gave the shocked free-willists the ammunition to combat Edwards' determinism. Anyway, the problem of the freedom of the will motivated a lot of American psychology (even in William James), and it is therefore part of its history.

Next is the *Period of Intellectual Philosophy*, 1776 to 1861 (85 years). Just as the advent of John Locke in 1714 marked a turn in the road of American psychology, so did the gospel of Thomas Reid's and Dugald Stewart's Scottish philosophy after (and a bit before) the Revolution. This movement took much more quickly than that of British empiricism and led a robust life. Its "John the Baptist arrived in America in 1768 in the person of the new President of Princeton" (College of New Jersey), John Witherspoon. It "was destined to sweep everything before it," and it was another Princeton President, James McCosh, who, as late as 1886, just when our own latter-day brand of 'new' psychology was emerging, published "a two-volume work on 'Psychology,' vigorously and dogmatically affirming the basic principles of the Scottish school." Practical America could cling to the slogan 'common sense' and delight in the reinstatement of a real mind and a real physical world after British empiricism was well on the way to the elimination of both.

About half of Fay's text is given to this second (1776 to 1861) of his three periods of American psychology, and more than half of the titles of his bibliography fall within it. At its close the essentials of our psy-

chology up to James were fixed. Of more than a dozen authors, the substance of whose contributions Fay outlines, four may be singled out as developmentally significant.

Following Witherspoon as President of Princeton came Samuel Stanhope Smith, publishing in 1812 his *Lectures* given over a series of years to his classes. Witherspoon had written that "... the immaterial system (Berkeleyanism) is a wild and ridiculous attempt to unsettle the principles of common sense ... and which I verily believe, never produced conviction even on the persons who pretend to espouse it." Smith, at first a Berkeleyan, married Witherspoon's daughter, "renounced his heresies, and fell in line for the presidency"—a story that McCosh "quoted with great glee." Smith's conversion must have been pretty complete for neither Witherspoon nor the later McCosh could best his phrase, "the philosophic delirium of hypothesis." Scottish doctrine was on its way. Smith's filling-in of the philosophical pattern was more empirical than that of his European models: for the first time in American writing the nervous system was mentioned, and the role of felt motives in guiding action, the true import of prolonged infancy, the psychological significance of language and, to a point, phases of mental hygiene and individual differences were emphasized. Such slants toward application, already noted in the case of the earlier Samuel Johnson, perhaps constitute the chief differentiae of the growing American psychology. While the author does in general portray American "in the light of contemporary European psychology," he does not specifically treat this problem of differentiae.

Certainly the influence of Smith's Philadelphia contemporary, the dynamic, versatile Benjamin Rush—of both medical and philosophical renown—had the practical turn. In medicine he has been called the Sydenham of America, and his contributions to psychology are in his medical writings (ca. 1812). Like Hartley and Cabanis in Europe—but more novel over here—he emphasized mental operations as effects of previous brain-motions. He was much concerned with physical causes operative in improving man's mental faculties and in a separate volume, *Diseases of the mind*, with the correlative causes of deterioration in these faculties. Rush published the first systematic studies in the country on abnormal mentality, used in practice the technique of suggestion, often had patients write out their own account of their symptoms, named and described phobias, was interested in dual personality, and fixed the pattern for the abnormal psychologies of many later writers. Curiously enough, Frederick Beasley, made Provost of the University of Pennsylvania the year Rush died, tried stubbornly to reinstate Locke (still on top in distant Yale), but the newer movements were hard to stem.

Asa Burton, from Connecticut, having been graduated from Dartmouth in 1777, settled in Vermont as a country pastor, where he read and wrote in seclusion. Fay thinks highly of him as an independent thinker relatively untrammelled by theology. On his own he arrived at the concept of the tripartite division of consciousness, thus bolstering the psychological answer to Jonathan Edwards. For the rest, he expounded a faculty psychology (a faculty—shades of Aristotle and Aquinas—is "a preparedness in the mind for certain operations'") rooted largely in Scottish theory.

Above all, many of Burton's ideas became widely spread through Thomas C. Upham, whom Burton greatly influenced. Upham started the flourishing career of that peculiarly American short cut to learning—the textbook—by publishing in 1827, about midway in our second period, *Elements of intellectual philosophy* (pp. 576). He was long-time professor of mental and moral philosophy in Bowdoin College, 1824 to 1867. The first comparable textbook in England was Sully's *Outlines*, 1884. In America, from 1827 to 1860 alone, upwards of thirty books are listed by Fay that may fairly fall under the 'textbook' heading. It became apparently no longer necessary for American students, unless forced, to read the great British authorities in the original.

Upham found the term "intellectual" too narrow for adequacy and therefore issued in 1831 his *Elements of 'mental' philosophy* (2 vols., pp. 561, 705). In 1834 appeared *A philosophical and practical treatment on the Will*, and in 1840 the first systematic textbook in America on abnormal psychology, his *Outline of imperfect and disordered mental action* (pp. 399). The textbook had voluminously arrived. Upham's second book went through eight editions from 1831 to 1869, and an abridgment thereof had five—with reprints up to at least 1881—and was still on sale in 1886. Even with no supporting evidence, these facts indicate how far-flung was Upham's influence in American academies and colleges.

Upham at first followed Locke, but turned more to Scottish and French thought. He was widely read. He himself described his work as essentially eclectic in character but wrote, after fully expounding the details of his matured psychology under the tripartite classification: " 'In fully exhausting, therefore, these topics, we may justly count upon having completed the exploration of the mental constitution. When we have done this, nothing remains to be said. The work is finished. The depths of the mind have been entered; the heights have been ascended; the boundaries have been set up.' " In England (*British Quarterly Review*, 1847) Upham's books were declared " 'free from the trammels of sect and system . . . the work forms, perhaps, the most consistent specimen of the application of this (the inductive) mode of investigation to mental science in our language.' "

I have expanded a bit on Upham because Fay allots him great influence on American psychology teaching, and gives 17 pages to an exposition of his views. To only two other authors does he grant comparable space—Samuel Johnson and Asa Burton.

Fay's third period of American psychology, that of British and German influence (1861 to 1890), marks the working over of the previous systematizations in the light of fuller knowledge of what was doing in contemporary Europe—notably by Noah Porter in his substantial *Human intellect* (1868, pp. 673). Fay characterizes it as "the encyclopaedia of pre-experimental psychology, a vast compendium of the Scottish philosophy strongly influenced by contemporary German thought" (Porter had studied a year in Berlin), and Brett, in his *History of psychology*, calls attention to the fact that this 'critical compendium' flourished until well into the nineties, or later. In this period, too, British phrenology and associationism, French abnormal psychology, and German physiological psychology and psychophysics made impression in America. To the

reviewer the significant traits of pre-experimental American psychology were set in the second period, and they persisted, with variations, until James.

Fay selects, besides Porter, five authors of this final period for special mention. James Rush, in a *'Brief' outline of the human intellect* (1865, 2 vols., pp. 450, 480) writes, "All that man perceives, thinks, pronounces, and performs is respectively through his senses, his brain, and his muscles," and fulminates with even greater invective than Watson against 'that notional method,' metaphysics. Quite in the pattern of his British contemporary Maundsley, he elaborates his theme of mind as a physical function of the physical organism. Rush's blast, like that of his greater father at the start of the Nineteenth Century, hardly shook the prevailing philosophical psychology: Ladd's *Elements of physiological psychology* did not appear until 1887, when Dewey's *Psychology* (1886), although hailed by G. Stanley Hall as "through and through speculative," was also, at least gently, tinged with the new dawn. But in the same year the old emphases were still loudly vocal in the works of two dogmatic heavy hitters. McCosh's *Psychology* blazed away from Scotland, and Borden P. Bowne, in his *Introduction to psychological theory*, tried hard to rescue psychology from encroaching physiology, "a most estimable science, but the physiological reconstruction of psychology has been postponed." And yet, in spite of efforts such as these (add *inter alia* David Jayne Hill's clear and well-organized *Elements of psychology*, 1888), the science-of-the-soul psychology had by 1886 begun to fold its tents. The authoritative *Principles of psychology* by William James, in 1890, hastened its departure. Summarizing the specific chapter devoted to demonstrating the futility of the soul-concept in any scientific psychology, James wrote: "My final conclusion, then, about the substantial Soul is that it explains nothing and guarantees nothing. . . ."

The reviewer's most vivid impression on finishing Fay's informing essay was of the sharply contrasting greatness of James against the backdrop of previous figures. The scope and brilliance of his genius certainly owed little to them. His inspiration came from deeper springs. It would have been nice to learn just what, if anything, James got from them, but that would be another story. The author might, however, have included some mention of what significance James' own contributions in the seventies and eighties had for the very story that the book tells. After all, his article on the emotions appeared in 1884, which had immediate repercussions from both the 'soul' authors and those who were looking ahead, and James had been teaching 'physiological psychology' at Harvard since 1875.

In spite of Fay's cullings of the better samplings from their writings, the Americans—in comparison with European contemporaries—make dreary reading, not only for those interested merely in the current point of view of "what is called 'scientific psychology,'" but likewise for those with real empathy for the historical perspective itself. As to the reasons aside from the fact that the Europeans got there first and from the question of differences in native capacity—I feel that the prevailing 'set' of the American mind was too inimical to fresh, objective inquiry. Of the twenty-four authors apparently most significant, nineteen were

trained in divinity and served as clergymen. Of the other five, two (Benjamin and James Rush) were medically trained; one (Levi Hedge, 1816) was a logician; and two, educators, published late in the period under review—Dewey (1886) and Hill (1888). The others were primarily interested in religion and morals. Such motives promote exploitation for wishful or foregone ends, not novel exploration. One has only to name the chief Europeans whose writings initially inspired American thinkers to sense the differences in temper: Descartes, Leibnitz, Hobbes, Locke, Berkeley (divinity), Hume, Hartley, Reid (divinity), Kant, Herbart, Thomas Brown, Hamilton, James Mill, John Stuart Mill.

ROSSELL P. ANGIER.

*Los Ranchos Perkins,
Tucson, Arizona.*

SKINNER, C. E., & HARRIMAN, P. L. (Eds.) *Child psychology: child development and modern education*. New York: Macmillan, 1941. Pp. xii + 522. (Collaborators: A. F. Arey, L. A. Averill, L. E. Bixler, E. A. Bond, J. W. Charles, L. D. Crow, R. M. Drake, C. Hissong, C. E. Ragsdale, G. Ridsen, J. J. Smith, B. E. Tomlinson.)

This textbook on child psychology is sound, conventional, uninspired. The fourteen authors hew to the twin organismic lines of growth and progressive education. For the most part, the terminological difficulties and inconsistencies usual to a collaborative undertaking have been avoided, and the result is readable at the level for which it is designed: that of parents, students of education, and the "general reader who is not an expert in this specialty."

Chapters on heredity, physical growth, motor and language development give scientifically documented factual accounts of the growth processes, while the latter two-thirds of the book is devoted to more didactic principles of emotional guidance, mental hygiene, and character development. Learning is given a brief (18-page) chapter which, while clearly and interestingly written, includes little meat even for the intelligent layman. This is in marked contrast to the 34 pages devoted to motor development, of which 6 pages are composed of tables giving standards for development of posture, locomotion, finger prehension, fifty-yard dash, and the like. These materials are not brought to significance for the reader in any constructive way; there is no indication of how such norms may be interpreted by the teacher with any advantage except as redundant evidence of the fact that the child develops with age.

Similarly Watson's, Sherman's, and Bridges' work on emotional reactions of infants is described in some detail, while Jersild's material on children's fears and Susan Isaacs', Percival Symonds', and David Levy's work on interpersonal relations are not mentioned. It has apparently become traditional to include in all child psychology books, for whatever audience, the elaborate descriptions of age progressions of certain small units of infant behavior and the "raw material" of infant emotional response. These observations are of interest when it can be demonstrated that they illustrate principles of development that can be applied at a more mature and complicated level. Too often, however, they cannot be so integrated, and the reader is left gasping without connecting links

between the rigid science of early infancy and the didactic, apparently unsupported conclusions about guidance and training of the school child. In the present case the inclusion of the data from infant observations has taken space which might well have been devoted to further elucidation, with citation of selected experiments, of learning principles, competition, success, and failure; and more consideration could have been given to environmental factors, *e.g.* Lewin's material on autocratic and democratic societies, and description of the effect of family mores to which the child must learn to adapt.

There is much repetitive material in the volume and much generalization concerning the aims of education. One does not find, however, serious consideration of the effect of individual differences on teaching. There is a chapter on the exceptional child, which considers briefly special problems connected with the training of certain obviously atypical groups: the bright, the mentally deficient, partially seeing, hard-of-hearing, crippled, delicate, and speech-defective child. Every teacher is well aware of the special difficulties connected with dealing with these children, and even the most reactionary city school systems have by now set up special arrangements for several of these groups. This is an old and timeworn story. Alert teachers want help on problems of the more slightly deviant: reasons for, and methods of, dealing with the overactive and the apathetic, energyless child. They raise questions about masturbation, reading disability, oversensitivity. Emphasis too uniformly on the normal, regular processes of growth may obscure the fact that for teachers and parents this "whole" child with whom they must work shows a number of baffling irregular functions, some pervasive in that they influence much of his behavior and some less generalized but equally potent in interfering with standard rules of procedure. In many cases it is neither practical nor sound to dismiss such problems as merely symptomatic. Along with principles of normal growth we must have increasing attention to the problem of what makes Johnny, but not Jimmy, run.

PAULINE SNEDDEN SEARS.

Yale University.

HATHAWAY, S. R. *Physiological psychology*. New York: Appleton-Century, 1942. Pp. xxi + 335.

The chief purpose of this book seems to have been the mating of neurophysiology and neuroanatomy, on the one hand, and clinical psychology, on the other. To this end, detailed discussion of the more special problems of the experimental physiological psychology pertaining to sensory and motor phenomena, as well as to learning, has been relegated to a very minor role. It was the admitted intention of the author to do so.

The divisions of the book are essentially three: the functional data of the nervous system (neurophysiology), the structural data of the nervous system (neuroanatomy), and the correlation of such data with behavior (what is usually meant by physiological psychology). This organization is somewhat flexible, however, so that there is frequent cross-reference between the three sets of data.

The inclusion of many modern neurophysiological data is to be highly commended. Much of the early part of the text is a digest of the basic electrophysiological experimentation of Gasser, Erlanger, Lorente de N6, and their associates. These data, which must condition certain psychophysiological theorizings, have long been generally ignored by psychologists. This marks the first occasion of their full-dress appearance in a psychological textbook. Their treatment is clear and entirely adequate, although in many places Hathaway might have strengthened the significance of these data by reference to their position in psychophysiological theory. As a matter of fact, however, these vital data are rarely, if ever, referred to after their first consideration, and the reader is apparently trusted to draw the full implications for himself.

The section devoted to the structural relationships of the nervous system reverses the usual order of events, beginning at the cortical level and ending at the spinal. It is in this section that many references to behavior deviations of interest to the clinical psychologist may be made. However, no very systematic attempt seems to have been made to illustrate the salient neuroanatomical facts with detailed clinical notes.

The section devoted to the physiological correlates of behavior comprises the last 100 pages of the volume; it is composed of five chapters: "Emotions and Affective States"; "Speech"; "Intelligence"; "Consciousness and Sleep"; "Motivation and Psychosomatic Relationships." In none of these is there extensive reference to the basic material presented in the first 200 pages, nor is there concise reference to current theory which might bear upon the problems treated. Even the experimental data are more alluded to than presented.

The author has not seen fit to bolster the text with references to specific sources. With the exception of acknowledgment of the sources of six figures, no citations appear. This omission was the author's commission, for which he apologizes: "... extensive documentation has been omitted, as making for a dull and pedantic presentation." This lack of reference to original material is certain to be irritating to the advanced student who may wish to compare his own references with the author's. (It should also be irritating to the workers whose endeavors are discussed but are not cited; for example, the major part of the chapter on "Speech" is apparently based upon the labors of Weisenberg and McBride, whose names are not mentioned.) While such a procedure may save the elementary student the bother of ignoring such reference, at the same time the failure to include them gives him a false view of the methods of scientific discussion. This lack of citations is again emphasized because the Century Psychology Series has in the past included at the end of each chapter a special section for fairly detailed notes serving as an adjunct to the discussion in the text. In partial recompense, the author provides a "Selected Bibliography" of thirty-four references which will serve further to orient the student.

Physiological psychology will perhaps prove best for those students who wish to gain a casual knowledge of the field, or for those not sufficiently advanced to grasp the more difficult and comprehensive discussions of the current experimental literature.

JOHN R. KNOTT.

University of Iowa.

GOLDSTEIN, K. *Human nature in the light of psychopathology.* (The William James Lectures delivered at Harvard University, 1937-1938.) Cambridge: Harvard Univ. Press, 1940. Pp. x+258.

Goldstein's "Human nature" is a brief and highly readable account of the holistic approach to human psychopathology. Particular emphasis is given to the large body of clinical data amassed by the author throughout three decades of research.

Despite his faith in the holistic approach, Goldstein admits that "there is no doubt that the atomistic method is the only legitimate scientific procedure for gaining facts" (p. 9). His criticism of this method lies in the fact that "... in the analytic experiment, which isolates the sections as it studies them, the properties and functions of any part must be modified by their isolation from the whole of the organism." The holistic approach avoids this difficulty by emphasizing that "... we must know in what way the condition of isolation modifies the functioning, and we must take these modifications into account" (p. 10).

Considerable emphasis is given to the author's dichotomy of concrete as opposed to abstract behavior, and a wide range of illustrative material is presented, recruited largely from the behavior of brain-injured patients. Concrete behavior is "... determined directly by a stimulus. ... The individual's procedure is somewhat passive, as if it were not he who had the initiative" (pp. 59-60). Though never directly stated, there appear to be a number of criteria for abstract behavior, including the ability to form and to respond selectively to appropriate categories, to respond to imagined stimuli, to react appropriately to sudden changes in a situation, to use words as symbols, and to prepare reflectively for activity rather than to respond immediately. Goldstein flatly states that the dichotomy between abstract and concrete behavior is complete.

Whenever an organism is placed in a situation demanding a response beyond its capabilities, behavioral disintegration, "a catastrophic response," results, and this may persist even after the situation is removed. Many interesting and apt clinical examples are given illustrating this response and modes of adjustment to it.

Goldstein stresses the fact that a single motivating force is all-pervasive. He criticizes conditioned-response interpretations and internal drive theories as falling into the atomic fallacy; he substitutes for these the drive to "self-actualization": the coming to terms of the organism with its environment in the manner most complete. It is the "urge to perfection" (p. 147).

This book should be of service to a wide group of psychologists for the many useful clinical examples cited and systematically presented. Goldstein points out limitations of closely circumscribed experimental techniques and stresses the great importance of testing organisms under conditions adapted to their potentialities.

Even if one takes issue with the given concepts and with certain of the logical procedures, the contributions of this book cannot be ignored.

HARRY F. HARLOW.

University of Wisconsin.

WHITING, J. W. M. *Becoming a Kwoma: teaching and learning in a New Guinea tribe.* (With a Foreword by J. Dollard.) New Haven: Yale Univ. Press, 1941. Pp. xix + 226.

The author of this volume sets himself to achieve two goals: first, to present data gathered on Kwoma culture, and, second, to present a theory of the process of socialization. In accomplishing the first aim, he gives a description of Kwoma culture patterns in the approximate order in which they impinge upon the individual from infancy to adulthood. This descriptive section of the book is not unusually full, the entire period up to adulthood being covered in 80 pages.

In preparing himself for presenting a theory of socialization, Whiting, who is primarily an anthropologist, sought further training primarily in Freudianism and in the conditioned-response theories of Hull and his associates. The reviewer thinks it unfortunate that he did not also prepare himself in the history of psychology. The essence of his theory of socialization is that the child in any society learns to do that which is rewarded and learns not to do that which is punished. There are further refinements, of course, and many of them are excellent, but the statement given above is the pith of the argument. This being the case, it seems somewhat out of proportion that in the book (as shown by the index) Hull is referred to seven times, Miller ten times, Dollard eleven times, while Thorndike is referred to only twice. All writers prior to Thorndike are passed over without any mention whatsoever. Associationists, turn!

This book will undoubtedly be read by many anthropologists. If some of them have only a slight knowledge of the history of psychology, they may arrive at the conclusion that the principle of reward and punishment was discovered at the Institute of Human Relations within the past decade. That this discovery came earlier is proven, however, by Whiting's demonstration that the Kwoma, in their rearing of children, make good use of the principles which he expounds. The Kwoma, he assures us, have not had a Western education and consequently do not base their practices upon Pavlov and his followers.

This criticism is naturally somewhat unfair. Nevertheless, it is true that what Whiting proposes as ostensibly a new theory of socialization (a big word now becoming popular) is to a large extent an application of a new set of terms to principles stated and utilized long ago. To be sure, some of the subordinate concepts are relatively new and do grow out of the work of Pavlov and Hull and of many other conditioned-response investigators as well. Since the author is writing in part for nonpsychologists, in proposing a learning theory he owes it to his readers to present them with an historical introduction to learning theory so that they can better estimate the extent of his own contributions.

WAYNE DENNIS.

Louisiana State University.

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LINDQUIST, E. F. A first course in statistics: their use and interpretation in education and psychology; Study manual for *A first course in statistics*. (Rev. eds.) Boston: Houghton Mifflin, 1942. Pp. xi+242; 117.

MILLER, J. G. Unconsciousness. New York: Wiley, 1942. Pp. vi+329.

REISER, O. L. A new earth and a new humanity. New York: Creative Age Press, 1942. Pp. xiv+252.

SHAFFER, L. F., GILMER, B. VON H., & PORTER, J. M., JR. Experiments and demonstrations in psychology: student's manual. New York: Harper, 1942. Pp. xi+230.

VAN VOORHIS, W. R. The improvement of space perception ability by training. (Abstract of Ph.D. Thesis, Pennsylvania State College, 1941.) Ann Arbor: Univ. Microfilms, 1942.

WOODWORTH, R. S. The Columbia University psychological laboratory: a fifty-year retrospect. New York: Author, 1942. Pp. 23.

———. Youth and the future. (The general report of the American Youth Commission.) Washington: American Council on Education, 1942. Pp. xix+296.

NOTES AND NEWS

DR. RAYMOND DODGE, professor emeritus of psychology, Yale University, President of the American Psychological Association in 1916, died April 8, 1942, at Tryon, North Carolina.

DR. JAMES H. ELDER, formerly of the University of Virginia, has been appointed assistant professor of psychology at Louisiana State University. DR. ALAN D. GRINSTED, instructor in psychology, has been granted a leave of absence while on duty as an Ensign in the U. S. Navy.

DR. MILDRED B. MITCHELL, formerly psychologist on the staffs of the Independence and Mount Pleasant State Hospitals of Iowa, joined the staff of the Bureau for Psychological Services of the State of Minnesota on October 1, 1941. She is to conduct psychological studies for the Child Welfare Boards of the State, for rural public schools, and for certain private social agencies.

MR. CARL SWEDENBURG, previously on the staff of the Division of Public Institutions of Minnesota, on January 1, 1942, became full-time psychologist at the Training School for Boys, Red Wing, Minnesota, where he is to serve as Chairman of the Committee on Classification.

MR. J. LOUIS YAGER, having completed his graduate work at the University of Chicago, was appointed full-time psychologist at the State Public School at Owatonna, Minnesota, on February 1, 1942. In this capacity he will serve as Director of the Department of Research and Diagnosis.

PROFESSOR B. F. SKINNER, of the University of Minnesota, was awarded the Howard Crosby Warren Medal for outstanding psychological research, by the Society of Experimental Psychologists at its annual meeting March 30 and 31, held at the Psychiatric Institute and Hospital, New York City. The citation read: "To B. F. Skinner, University of Minnesota, for his experimental analysis of laws operating in one type of conditioning, furnishing a basis for a positivistic description of operant behavior."

A change in the EDITORSHIP of the *Journal of Parapsychology* has recently been announced. The new editors are Drs. J. B. Rhine, Charles E. Stuart, and J. G. Pratt, with Dr. J. A. Greenwood as statistical editor. The journal had been edited for three years previously by Dr. Gardner Murphy, of the College of the City of New York, and Dr. Bernard F. Riess, of Hunter College. With this change, the editorship of the journal returns to Duke University, where it was first started.

DR. S. J. BECK, head of the psychology laboratory in the department of neuropsychiatry at Michael Reese Hospital, will offer his usual summer course on THE RORSCHACH TEST IN PERSONALITY STUDY AND CLINICAL DIAGNOSIS from June 22 through June 26, 1942. The accent this year will be on the neuroses. Those interested may communicate

with the Medical Librarian, Michael Reese Hospital, 2908 Ellis Avenue, Chicago, Illinois.

THE ANNUAL MEETING of the CANADIAN PSYCHOLOGICAL ASSOCIATION will be held at the University of Toronto on May 25 and 26. Members of the American Psychological Association are invited to attend. Information about program and arrangements may be obtained from Dr. K. S. Bernhardt, Department of Psychology, University of Toronto, Toronto, Ontario.

THE department of psychology of COLUMBIA UNIVERSITY celebrated its FIFTIETH ANNIVERSARY on Alumni Day, February 12, 1942. At a reception held in the afternoon for students, alumni, and faculty, guests and friends were presented with a short history of the department prepared by Professor Woodworth and entitled: "The Columbia University Psychological Laboratory: A Fifty-Year Retrospect." A dinner for faculty, former Ph.D.'s, and students at present matriculated for the doctorate was held at the University Faculty Club in the evening. Professor A. T. Poffenberger acted as Master of Ceremonies, and brief talks were given by President Nicholas Murray Butler, Dr. James McKeen Cattell, and Professors E. L. Thorndike, R. S. Woodworth, Mark May, Alice Bryan, and Gardner Murphy.

The psychology laboratory was founded in September, 1891, by JAMES MCKEEN CATTELL, who came to Columbia from the University of Pennsylvania. At that time Columbia was located at Madison Avenue and 49th Street, and the psychology department was housed in the attic of the President's home.

THE AMERICAN PSYCHOLOGICAL ASSOCIATION COMMITTEE ON EXAMINATION QUESTIONS IN PSYCHOLOGY has recently voted to prepare a pool of approximately 1000 examination questions applicable to the elementary course, to be distributed to instructors but not to students. The Committee further voted to print a call for contributions of items in the *Psychological Bulletin*. Therefore, persons having suitable items in their possession and wishing to contribute them to such a pool are asked to send this material to the Chairman of this Committee, Dr. Edward B. Greene, 2909 Brandywine Avenue, Washington, D. C. Other members of the Committee are: Kenneth Baker (vote pending), Charles Bird, Alvin C. Eurich, Paul Farnsworth, Richard Husband, Leon A. Pennington, and Ben D. Wood.

Since the funds of the Committee are very limited, it is recommended that, wherever possible, each item should be placed upon a 5X8 card and that the cost of the work be met locally through N.Y.A. helpers or by departments. Contributors are asked to indicate: (a) whether or not they wish each item to be identified by the initials of its author; (b) what form the final work should take—booklet, cards, or microfilm; (c) how final copies should be distributed—by A.P.A. publishers, by the American Council on Education, or by private publisher.

Since it is desirable to finish the pool by September, 1942, prompt action by contributors will be appreciated.

THE AMERICAN LIBRARY ASSOCIATION created this last year the COMMITTEE ON AID TO LIBRARIES IN WAR AREAS, headed by John R. Russell, the Librarian of the University of Rochester. The Committee is faced with numerous serious problems and hopes that American scholars and scientists will be of considerable aid in the solution of one of these problems.

One of the most difficult tasks in library reconstruction after the first World War was that of completing foreign institutional sets of American scholarly, scientific, and technical periodicals. The attempt to avoid a duplication of that situation is now the concern of the Committee.

Many sets of journals will be broken by the financial inability of the institutions to renew subscriptions. As far as possible they will be completed from a stock of periodicals being purchased by the Committee. Many more will have been broken through mail difficulties and loss of shipments, while still other sets will have disappeared in the destruction of libraries. The size of the eventual demand is impossible to estimate, but requests received by the Committee already give evidence that it will be enormous.

With an imminent paper shortage attempts are being made to collect old periodicals for pulp. Fearing this possible reduction in the already limited supply of scholarly and scientific journals, the Committee hopes to enlist the cooperation of subscribers to this journal in preventing the sacrifice of this type of material to the pulp demand. It is scarcely necessary to mention the appreciation of foreign institutions and scholars for this activity.

Questions concerning the project or concerning the value of particular periodicals to the project should be directed to Wayne M. Hartwell, Executive Assistant to the Committee on Aid to Libraries in War Areas, Rush Rhees Library, University of Rochester, Rochester, New York.

THE CALIFORNIA ASSOCIATION OF APPLIED PSYCHOLOGISTS was formed at a meeting held in Los Angeles on February 28, 1942. The general purposes of the Association are to develop the science and techniques of applied psychology; to extend the utilization of the facts, principles, and procedures of scientific psychology, and to promote the services which applied psychology can render to the individual and to society. The qualifications for Fellow are: that in his present position the applicant spends the major part of his working time in the practice of psychology; that he shall have practiced psychology for a total of five years; that he shall satisfy the Board of Governors that his knowledge of psychology is adequate for sound work in the field in which he is practicing, and that it is generally extensive enough for professional standing in applied psychology; that he shall have been elected to or be eligible for membership in the AMERICAN ASSOCIATION FOR APPLIED PSYCHOLOGY, the AMERICAN PSYCHOLOGICAL ASSOCIATION. The qualifications for Associate are: that in his present position the applicant spends the major part of his working time in the practice of psychology, or that he spends the major part of his time in teaching or in research in psychology, but gives one or more courses in applied psychology.

There are two branches of the Association, one for Southern California and one for Northern California, which are to hold at least bi-monthly meetings. The whole Association will meet twice a year. The officers for 1942 are HERMAN DE FREMERY (Alto Psychologic Center), President; GUY W. WADSWORTH (Southern California Gas Co.), Vice-President; SYBIL K. RICHARDSON (University Elementary School), Secretary-Treasurer.

It will be greatly appreciated if psychologists throughout the country will send NEWS of interest concerning PSYCHOLOGISTS AND PSYCHOLOGY IN THE WAR EFFORT to the Office of Psychological Personnel, National Research Council, 2101 Constitution Avenue, Washington, D. C. So far as possible these items will be published in the "Psychology and the War" section of the *Bulletin* shortly after they are received.

